

1. GUIDANCE FOR ~~LAND APPLICATION~~ RECLAMATION AND REUSE OF MUNICIPAL AND INDUSTRIAL WASTEWATER

1.1 INTRODUCTION

Land application of wastewater has long been recognized as a viable method of wastewater treatment. However, in some cases it became apparent that surface and ground water contamination related to the wastewater land application system operation was occurring. Experience and a better understanding of how ground water contamination is related to activities on the land surface raised awareness of the complexity surrounding the land treatment methods. These and other issues were the driving forces in developing a land application permit program in Idaho.

The broader topic of REUSE of wastewater includes many other uses besides land treatment and land application. The future direction of the Land Application Permit Program will be to include these additional uses and to periodically update the rules and guidance as needed to address the demand.

1.2 WASTEWATER LAND APPLICATION PERMIT (WLAP) PROGRAM HISTORY

The Wastewater Land Application Permit (WLAP) Program is an established and well developed state regulatory program. The original program regulations became effective in April 1988 and companion guidelines were finalized in March 1988. Together, the regulations and guidelines helped establish parameters for workable land application permits that protected surface and ground water quality and met the treatment needs of the wastewater generator.

~~At the time of program inception, the position of the Idaho Department of Health and Welfare Division of Environmental Quality (DEQ) toward the wastewater land application program was stated in a memo from Al Murrey, Chief, Water Quality Bureau to DEQ staff. The memo reads in part as follows:~~

~~"The Land Treatment Guidelines have been finalized The intended use of this document is as a guide, not a regulation. We do NOT expect existing facilities to change their loading rates or other operating criteria to simply adhere to the recommendations in these guidelines. Only in the event of significant odor problems or ground water contamination will these facilities be re-evaluated based on the guidelines. New facilities plans, however, should be reviewed and approved or modified on the basis of these guidelines. In your reviews, keep in mind that there may be situations where loading rates higher than those recommended in the guidelines could be approved. Approval of higher loadings would require, however, that adequate justification be given.~~

~~We are continuing our work with industry to defray their concern about retroactive application of these guidelines to existing facilities. Should anyone inquire, please relate the above as the Department's position on existing and future land treatment facilities...."~~

~~DEQ issued the first generation of wastewater land application permits in 1988-1989 based on this directive.~~

The 1988 guidelines were of necessity very general, focusing on broad considerations for both the design and evaluation of WLAP proposals. Five years into program implementation, it became apparent that some program components required more specificity in order for the second generation of permits to be issued in a fair and consistent manner while still allowing flexibility for site specific conditions. Also, significant technical changes had been made which needed to be available to the permittee with regard to distances to public or private wells and ground water monitoring. The 1994 Technical Interpretive Supplement made these technical advances available to the regulated community in addition to the 1988 Guidelines.

A WLAP Technical Work Group comprised of agency, industry, municipalities and technical consultants was formed in September 1993, to expand the original guidelines on four (4) selected issues of concern. The expansion, called the 1994 Technical Interpretive Supplement, included supportive information on: growing and non-growing season application rates, using a capture zone analysis and wellhead protection concept to determine minimum setback distances to public and private wells, buffer zones to protect the public, and grazing on land application sites.

Both the 1994 Technical Interpretive Supplement and the 1988 guidelines support and reinforce laws and regulations, but by themselves are not standards or mandates. Both the 1994 Technical Interpretive Supplement and the 1988 guidelines were published in April of 1996 as a combined document call the "Handbook for Land Application of Municipal and Industrial Wastewater" as a paper document.

In May of 2004, DEQ created an electronic web-based draft which was simply a reorganization by topic of the "Handbook" and called it the "Guidance for Land Application of Municipal and Industrial Wastewater". Since that time, DEQ has sought continued public input to update and make corrections to this initial web-based document.

As a part of the public process and in anticipation of a name change for the "Wastewater Land Application Permit Rules" to "Reclamation and Reuse of Municipal and Industrial Wastewater Permit Rules" (Reuse Rules), the name of this guidance is now **"Guidance for Reclamation and Reuse of Municipal and Industrial Wastewater" (Reuse Guidance)**. This will allow for future uses of reclaimed wastewater that may or may not have anything to do with land treatment or land application.

1.3 GUIDANCE FOR THE RECLAMATION AND REUSE OF MUNICIPAL AND INDUSTRIAL WASTEWATER

~~The 1988 Guidelines were intended to provide criteria to meet or equal when designing wastewater land application systems and to protect water quality and public health, unless justification to do otherwise could be provided. The 1994 Technical Interpretive Supplement provided further guidance for preparing such justification. This means any applicant or permittee may choose to submit a proposal that is different than what is recommended in the guidelines, if accompanied by justification that supports allowing less than the 1988 Guidelines.~~

New systems ~~should~~ must be designed to meet all requirements of the WLAP Reuse regulations Rules. The ~~1988 Guidelines and interpretive supplement~~ Reuse Guidance Document provides guidance assistance in how to meet the requirements of the Regulations Rules, and therefore should be used by new systems to ensure compliance. Existing systems must also meet the requirements of the WLAP Reuse Regulations Rules. If a permittee has been experiencing operational or compliance problems meeting permit conditions or water quality standards, the ~~guidelines and technical supplement~~ Reuse Guidance Document should be reviewed in order to help attain compliance. ~~Those facilities already complying with permit conditions and the water quality standards may not need to consider the recommendations in the 1994 technical supplement.~~

The ~~Wastewater Land Application Permit R~~ regulations Reuse Rules (link below) addresses the treatment of municipal and industrial wastewater by different types of land application and treatment systems and other treatment requirements for higher classes of effluent. Additionally, the Ground Water Quality Rule (GWQR) is also linked below. The GWQR also has impact on Reuse Facilities and is provided here for completeness.

<http://www2.state.id.us/adm/adminrules/rules/idapa58/0117.pdf>

<http://www2.state.id.us/adm/adminrules/rules/idapa58/0111.pdf>

~~The 1988 Guidelines and the 1994 Technical Interpretive Supplement are more specifically focused on slow rate systems, since the majority of land application systems in Idaho are slow rate systems.~~

~~While overland flow and rapid infiltration systems are not discussed in the 1994 Technical Interpretive Supplement, they can be considered as an alternative wastewater treatment technology. Rapid infiltration wastewater treatment systems having adequate design and management are effective in filtering pathogenic organisms, nitrifying/denitrifying nitrogen, and oxidizing COD (chemical oxygen demand). The Environmental Protection Agency's *Process Design Manual for Land Treatment of Municipal Wastewater*, October, 1981, and EPA's *Process Design Manual for Land Treatment of Municipal Wastewater Supplement on Rapid Infiltration and Overland Flow*, EPA 625/1-81-013a, October 1984, should be used if proposing one of these two types of land application systems. Special consideration should be given to rapid infiltration systems that recharge a primary drinking water aquifer with respect to nitrate,~~

~~TOC (total organic carbon), and pathogen reduction of bacteria, cysts, viruses, and other organisms.~~

The Reuse Guidance Document for Land Application of Municipal and Industrial Wastewater is intended to be a dynamic information source that evolves as new technology becomes available or expands as additional issues of concern are researched and developed. Given this, DEQ is interested in comments on any issue of concern for DEQ consideration for future editions of this Reuse Guidance Document. Comments, suggestions, or issues of concern may be submitted to:

Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706-1255
Attention: Richard Huddleston, Program Manager
Wastewater Program

It is important to remember that DEQ guidance does not have the force of law or regulation and does not replace best professional judgment, but provides a starting point and assistance in the design of wastewater ~~land application~~ reclamation and reuse program.

~~1.4 — STREAMLINING THE WASTEWATER LAND APPLICATION PROGRAM~~

~~In December 1995, the WLAP program staff created a streamlined approach for the WLAP permit program to alleviate the backlog of permit applications and to allow a more timely response on future permits while using existing DEQ resources and fitting within the existing regulatory framework. The new program approach was presented to and accepted by the Environmental Subcommittee of the Legislative Common Sense Task Force and the regulated community early in 1996.~~

~~The streamlined WLAP program, as proposed, consisted of: implementing a three level permit application procedure, increasing the number of visits and inspections of WLAP sites, enhancing personal contact with permittees, improving hands on assistance with the operation and maintenance of sites and minimizing paperwork. The key to successfully streamlining the program was based on effectively using the three levels of applications as a screening tool and a time management tool to write permits. The screening process separated applications based on the risk to public health and safety and risk to the environment as well as technical information such as wastewater data (quality and quantity), loading rates, and site specific conditions. Resources were then concentrated on those facilities that have the greatest potential for environmental impacts.~~

~~The three levels of applications generally divide WLAP sites as outlined below:~~

- ~~Level 1—Low level application rates with minimal regulatory concerns. Site conditions are favorable to land application. Low risk to public health and the environment. Minimal monitoring and reporting requirements.~~
- ~~Level 2—Moderate application rates at or below guideline rates with site conditions amenable to land application. Moderate risk to public health and the environment. Ground water monitoring and reporting requirements commensurate to specific site conditions and areas of concern.~~
- ~~Level 3—High application rates, at or above guidelines with severe site conditions. High risk to public health and the environment or environmental impacts may already exist. Extensive monitoring and reporting can be expected (Majority of staff resources will be focused on permits in this category).~~

~~The three levels described above are only used as identification numbers for the WLAP applications and will not appear on the WLAP permit. The WLAP permit issued will prescribe conditions commensurate with the complexity of the site and the potential or actual impacts to waters of the state.~~

~~DEQ anticipated that implementation of this new approach to the Wastewater Land Application Permit Program would result in approximately 75% of the permits being issued in less than half of the existing time frame. The streamlined approach to WLAP permitting initiated in 1996 was successful.~~

1.4 CURRENT DIRECTION IN THE WLAP REUSE PROGRAM

In 2002, a significant amount of new guidance was developed for the WLAP Reuse Program. More use was made of the Internet to provide this guidance to the public, the regulated community, and to DEQ internally. The inclusion of this re-formatted guidance new guidance in the Reuse Guidance Document is part of the continuing effort to ensure consistency in the WLAP Reuse program and to involve the public in the program.

There are many issues continuing to face the WLAP Reuse Program. These include consistent approaches to phosphorus loading, total dissolved solids loading, non-growing season application on frozen soils, and other future issues such as concern over pharmaceuticals in wastewater.

DEQ initiated a renewed effort in the public process in 2004 to provide for a consistent program to review existing guidance and to establish a process for introducing and examining new guidance. With regard to this Reuse Guidance Document, DEQ invited the public to meet to form an advisory working group to meet periodically to review existing and future Reuse Guidance, and provide suggested updates, additions, deletions or corrections. DEQ intends to post these suggestions on its website for a 30-day public comment period. Following that public comment period, the advisory working group will review public comment, modify the suggested changes if needed, and then submit

the final suggested modifications to the Director of DEQ for a final decision on including them in the Reuse Guidance Document. The advisory working group is open to the public at large and can introduce new suggested guidance to DEQ through this process.

~~Regionalization of the program took place in 1999. This was done to bring customer service to a more direct level. Maintaining consistency in the now regionalized program is an important priority of the Program Office.~~

1.5 FUTURE DIRECTION IN THE ~~WLAP~~ REUSE PROGRAM

An effort to post all draft and final permits on the Internet was initiated in 2002. This effort will continue in the future, in an attempt to make the public and permittees more aware of the directions of the Program and to make permits more consistent across the state. It is the intent of the Program to use the Internet to continually update information and guidance via the DEQ web-site. Input from the public at large is welcome.

1.6 ORGANIZATION OF THIS INTERNET VERSION OF THE ~~WLAP~~ REUSE GUIDANCE

The web-based electronic Reuse Guidance Document is topic driven. Interested viewers may click on the topic of their choice in the table of contents and have access to the latest guidance information on the topic. Other internal links within the topics allow viewers to move between topics on a limited basis.

Additionally, this will be the location in the Reuse Guidance Document that will outline the sections that have been modified in the past two years.

<u>Date</u>	<u>Sections modified</u>	<u>Brief description of modifications</u>
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